



# UNITED STATES PATENT AND TRADEMARK OFFICE

*Cen*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,182	12/22/2005	Patrick Pan	117393-002	4144
29177	7590	10/31/2007	EXAMINER	
BELL, BOYD & LLOYD, LLP			LE, HOANGANH T	
P.O. BOX 1135			ART UNIT	PAPER NUMBER
CHICAGO, IL 60690			2821	
MAIL DATE		DELIVERY MODE		
10/31/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/562,182	PAN ET AL.
<b>Examiner</b>	<b>Art Unit</b>	
	HoangAnh T. Le	2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 22 December 2005.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 9-17 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-17 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All    b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Hoanganh Le  
Primary Examiner

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/23/06  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 9, line 9, "the antenna branch" has no antecedent basis.

In claim 15, are "the ground connection" of claim 1 and "the ground connection" of claim 15 the same?

Claim 15 recites "a further supply connection located at an outer edge of the antenna branches and the further antenna branches". From the claim, it is not clear how one further supply connection can located at an outer edge of the antenna branches and at an outer edge of the further antenna branches (two locations)?

In claim 16, "the further RF supply connection" has no antecedent basis.

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 9,12-14 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Pollasne et al (the US 2003/0201942).

Regarding claim 9, the Pollasne et al reference teaches in figure 6A a PIFA antenna arrangement for at least two mobile radio frequency bands having a desired separation from one another comprising: at least two antenna branches 158,160, which run alongside to one another and have a gap 166 therebetween, wherein the branches are in the form of strips and are connected to one another at a foot point 162 to form a series connection, and wherein the antenna branches have straight sections that produce capacitive coupling between the antenna branches (para.[0068]); a ground connection, arranged at a free end of one of the antenna branches; an RF supply connection 118 is arranged at the outer edge of the antenna branch where the ground connection is provided (figure 6A); and wherein the widths of the antenna branches, the lengths of the antenna branches, and the gap between the antenna branches are of such a size that the PIFA antenna structure has two resonant frequency bands that conform to the desired separation.

Regarding claim 12, wherein the distance between the ground connection and the RF supply connection is inherent matched to a resonant frequency (figure 6A).

Regarding claim 13, wherein the area ratio of the at least two antenna branches corresponds to a ratio between two resonant frequencies (figure 6C).

Regarding claim 14, figure 14A shows two further antenna branches which run alongside one another, wherein the two further antennas are in the form of strips and are connected to one another at a second foot point in order to connect the two further antenna branches in series with one another, the further antenna branches having a predetermined distance from one another over one section in order to form a gap, and wherein the further antenna branches have straight sections that produce capacitive coupling between the antenna branches.

Regarding claim 17, the arrangement has a substantially rectangular outer edge (figure 14A).

#### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pollasne et al (cited above).

Regarding claims 10 and 11, the Pollasne et al reference teaches every feature of the claimed invention, excluding the width of one antenna branch being less than 1/15 of the wavelength of a higher-frequency frequency band or the width of one

antenna branch being less than 1/20 of the wavelength of the higher-frequency frequency band.

It would have been an obvious matter of design choice to have the width of one antenna branch being less than 1/15 of the wavelength of a higher-frequency frequency band or the width of one antenna branch being less than 1/20 of the wavelength of the higher-frequency frequency band because the width of the antenna depends on the operating frequency.

***Allowable Subject Matter***

8. Claims 15 and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: none of the cited art discloses a ground connection between the antenna branches and the further antenna branches; and a further supply connection located at an outer edge of the antenna branches and the further antenna branches of the PIFA antenna structure, at which the ground connection is provided, and wherein the widths of the further antenna branches, the lengths of the further antenna branches and the gap between the further antenna branches are of such a size that the PIFA antenna structure produces two further resonant frequency bands with the desired separation from one another.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HoangAnh T. Le whose telephone number is (571) 272-1823. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Hoanganh Le  
Primary Examiner